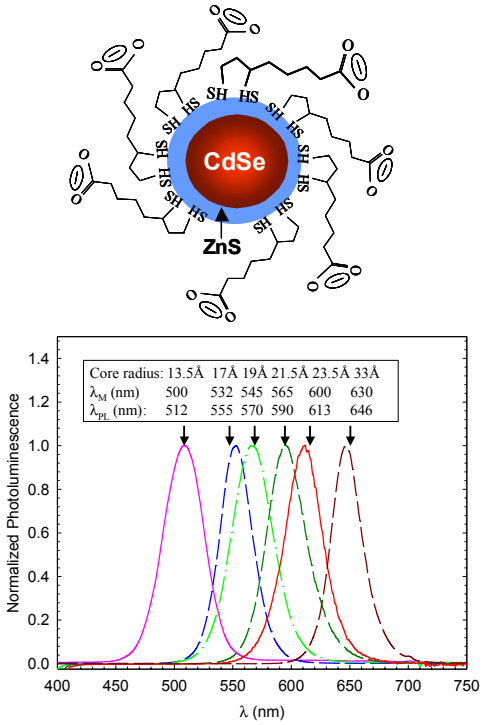

Fig. 1: (top) A schematic representation of a colloidal CdSe-ZnS QD capped with dihydrolipoic acid ligands to achieve water-solubility. (bottom) A set of emission spectra form several size QDs all excited at 400 nm.

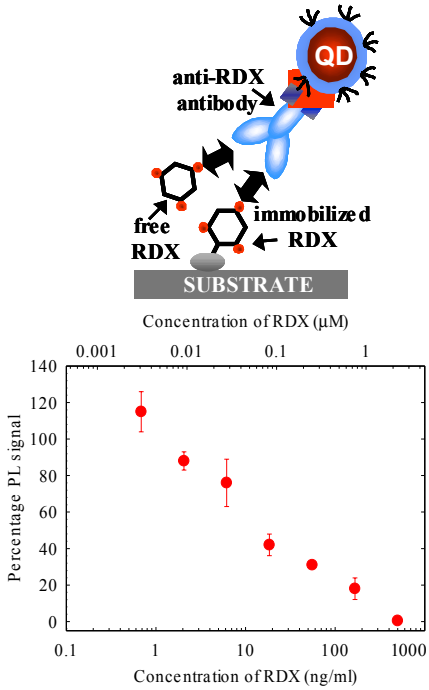

Fig. 2: Schematic representation of a competition/displacement assay for the detection of low levels of dissolved RDX explosive using QD-anti-RDX antibody conjugates. (Bottom) Graphed data from competition assay, showing systematically lowered signal as increasing levels of free RDX compete with surface-immobilized RDX derivative for conjugate binding.

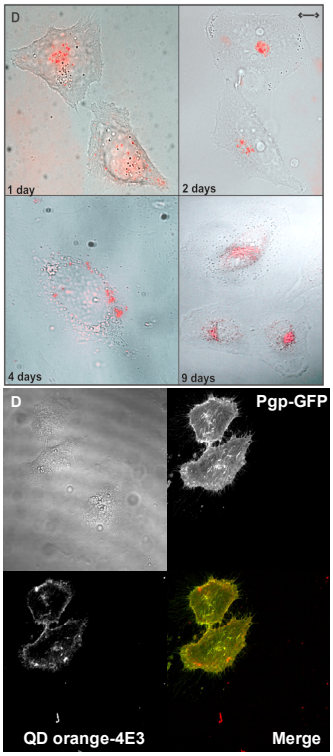

Fig. 3: (top) Overlay of brightfield and epi-fluorescence images of live HeLa cells labeled with QDs and allowed to grow for 9 days. Cells grew and divided unaffected by the presence of the QDs. (bottom) Specific surface labeling of HeLa cells expressing the P glycoprotein fused with a green fluorescent protein (Pgp-GFP) with QD-anti Pgp conjugates. Green emission from GFP is distributed everywhere inside the expressed cells whereas the QD emission is limited only to the cell surface.

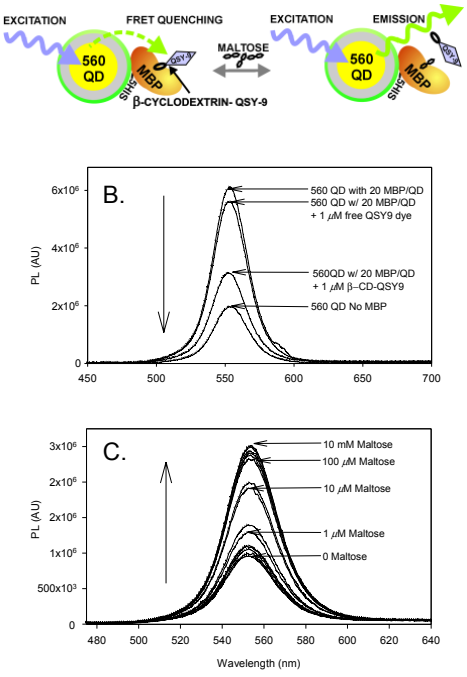

Fig. 4: (A) Schematic function of a QD-MBP (maltose binding protein) sensor for maltose. Specific binding of QD-MBP-β-CD-QSY9 results in quenching of QD emission. Added maltose displaces β-CD-QSY9 from the sensor assembly and results in an increase in QD emission. (B) Demonstration of QD-MBP FRET quenching. These same QD-MBP conjugates were then mixed with either 1 μM free QSY9 dye or 1 μM β-CD-QSY9. (C)Titration of pre-assembled QD-MBP conjugates with increasing concentrations of maltose.